CURRENT LITERATURE

BOOK REVIEWS

The Salton Sea

The remarkable overflow of the Colorado River in 1905–1907, causing the submergence of a portion of the Cahuilla Basin, resulted in an expanse of waters known as the Salton Sea. At its maximum, this sea had a depth of 84 feet and an area of 410 square miles, but since the checking of the influx from the Colorado River in 1907, it has suffered an annual subsidence, due to the excess of evaporation over precipitation, averaging about 4.5 feet. These phenomena afforded excellent opportunities for ecological investigations of a unique character, which have been conducted by the Department of Botanical Research of the Carnegie Institution.[1]

The report begins with an account of the discovery, exploration, and geologic history of the Cahuilla Basin, prepared by the late WILLIAM P. BLAKE two years previous to his death in 1910. His connection with the exploration of the area extends from his discovery of the basin in 1853, when he was a member of the Williamson Expedition, to this last visit in 1906. Further details regarding the geographical features of the region are contributed by GODFREY SYKES, who includes reproductions of some of the earliest maps, beginning with one by CASTILLO made in 1541 and first published in 1770. E. E. FREE gives a sketch of the geology and a discussion of the two types of soil, the coarser composed of gravel and sand resulting from the decomposition of the granitic rocks *in situ;* the other, an alluvium of fine texture. Both are decidedly fertile, except for the local development of alkaline conditions. ROSS and VINSON provide a comparison of the chemical composition of the water at various intervals from 1906 to 1913, showing a close resemblance to that of ordinary sea water and an increasing concentration of salts with the present continuous recession. The behavior of micro-organisms in the brine is reported by G. J. PEIRCE, a small red chromogenic bacillus receiving particular attention. M. A. BRANNON, working at the Botanical Laboratory of the University of Chicago upon the action of the Salton Sea water on vegetative tissues, reports no evidence of petrifaction of woody tissues, but a decortication of woody plants submerged for a year or more, due to the enzymic action of bacterial organisms upon the tissues of the cambium region.

[1] MACDOUGAL, D. T., and COLLABORATORS, The Salton Sea. A study of the geography, the geology, the floristics, and the ecology of a desert basin. Carnegie Inst. Pub. 193. pp. 182. *figs.* 4. *pls.* 32. 1914.

Naturally, the floristics and plant ecology of the area receive the major portion of attention. S. B. PARISH sketches the history of its botanical exploration, from a botanical paper by Dr. C. C. PARRY in Emory's Report of the Survey of the boundary between the United States and Mexico, made in 1856. He presents an annotated list of indigenous and introduced species, the former including 8 trees, 23 shrubs, 10 suffrutescent plants, 30 perennial herbs, and 51 annuals. Only 7 species are endemic. A grouping is made into formations and associations, the halophytic and xerophytic naturally being the most prominent. Detailed sketches of some of the outskirts of the area have already appeared.[2] This analysis of the composition of the vegetation is continued in MACDOUGAL'S inquiry into its genesis, as shown by its re-establishment upon areas sterilized by submergence. He considers both the re-occupation of the strand left bare by the receding lake and that of sterilized islands emerging from the lowering waters. The changes as the aridity of the strand increases, the agencies effective in carrying seeds, and the invasion of new species are among the topics receiving attention, while a detailed history is given of various portions of the strands emerging from the waters. Among the pioneer forms, species of *Atriplex*, *Heliotropium*, *Sesuvium*, *Pluchea*, *Distichlis*, and *Suaeda*, together with *Prosopis pubescens*, *P. glaudulosa*, and *Salix nigra*, are found, but their abundance and survival differ at different points along the shore, and this could be to some extent related to the slope and character of the soil. The fact that 4 out of 60 species found upon the strand showed modifications of structure not observed elsewhere suggests the possibility that the changing conditions are resulting in the production of new species, and that similar series of changes in the past have been similarly productive.

The exactness of the present report and the abundance of its data also combine to make it a most valuable record for the future study of these as well as of other problems which may arise with the continual subsidence of the sea and the further development of the surrounding vegetation.—GEO. D. FULLER.

MINOR NOTICES

Flora of the Dutch West Indian Islands.—BOLDINGH[3] has published a second volume under the foregoing title, which deals with the islands of Curaçao, Aruba, and Bonaire. The present volume is divided into three parts, first Systematical, second Historical, and third Phytogeographical. The last part is subdivided into the following sections: (A) Orological, Geological, and Meteorological, (B) Distribution of the wild plants enumerated in the first part, (C) The vegetation of Curaçao, Aruba, and Bonaire. To this is added an

[2] PARISH, S. B., Sketches of the Colorado Desert. Plant World 17:122–130. 1914.

[3] BOLDINGH, I., The flora of the Dutch West Indian Islands. Second Volume. Curaçao, Aruba, and Bonaire. 8vo. xiv+197. *pls.* 9. *map* 1. Leyden: E. J. Brill. 1914.